

SPoRT: Experiences in Transitioning Satellite Data to Operations

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Accelerating GPM Data Use at NOAA

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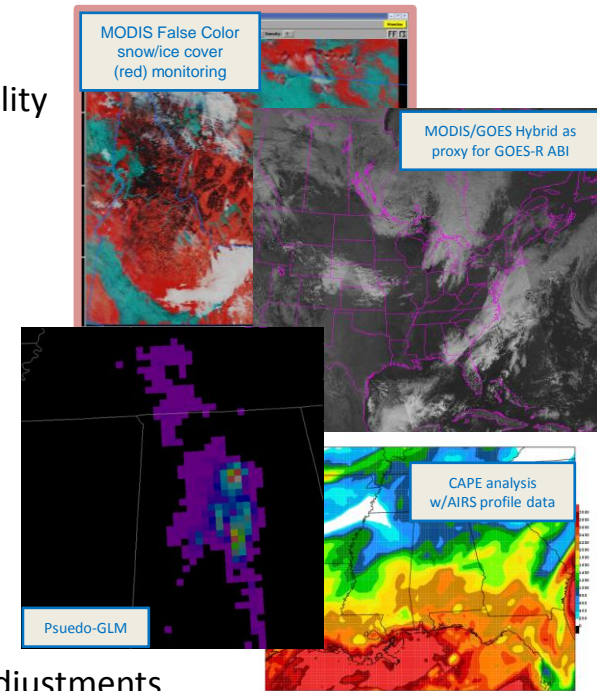
transitioning unique NASA data and research technologies to operations



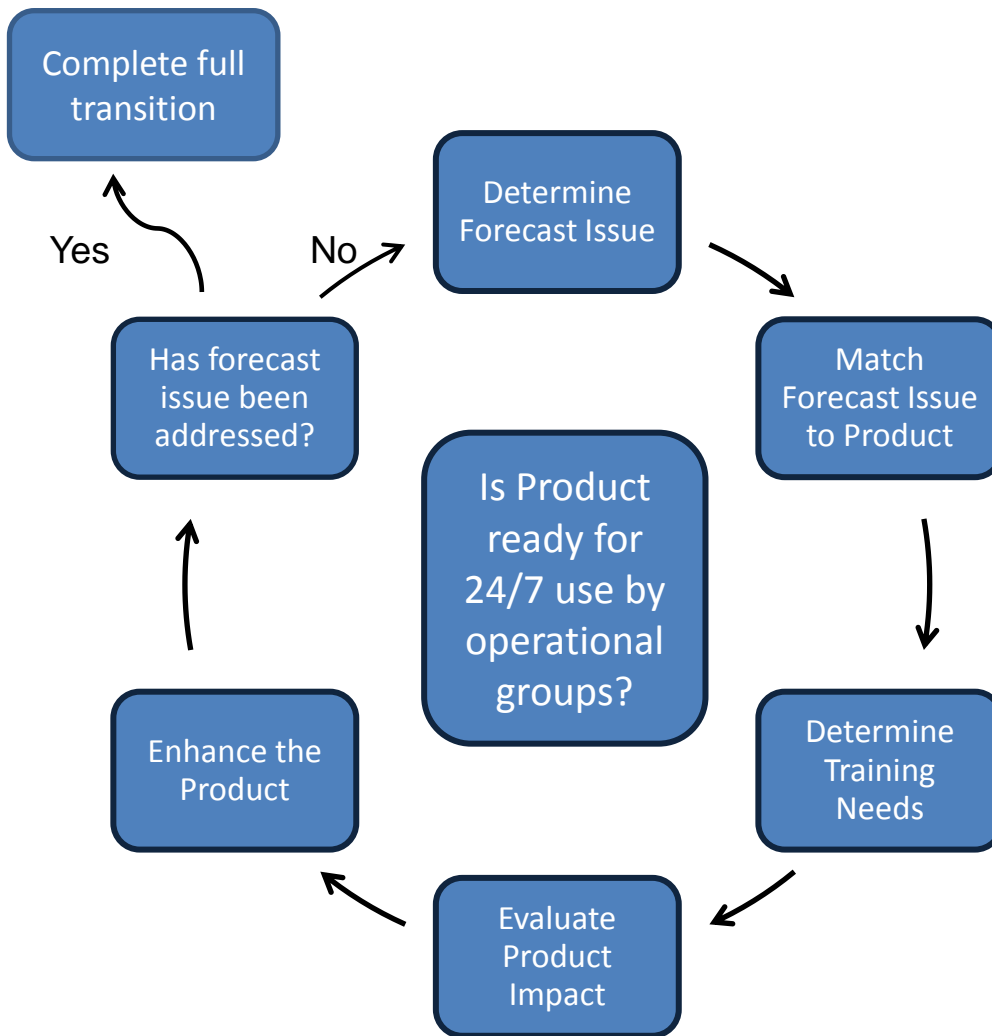
NASA's Short-term Prediction Research and Transition (SPoRT) Center

Mission: Apply NASA measurement systems and unique Earth science research to improve the accuracy of short-term weather prediction at the regional and local scale

- Development of new products and capabilities
 - Work with end users to identify forecast problems then match NASA capability
- Test-bed for rapid prototyping of new products
 - Contributions to GOES-R Proving Ground and AWIPS II development efforts
- Transition research capabilities/products to operations
 - Real-time MODIS and GOES data and products to NWS WFOs
 - Lightning products from Lightning Mapping Array (LMA)
 - Multiplatform SST composites, AMSR-E rain rates, ocean color products
 - On-site and distance learning modules for training on new products
- Modeling and data assimilation
 - Regional assimilation of hyperspectral radiances and retrieved profiles
 - Land (Land Information Systems) and water (SPoRT SST) lower boundary adjustments
- Continue to stay on cutting edge of innovative instrumentation to solve forecast challenges
 - Working with VIIRS, IASI, and CrIS observations to solve ever-evolving list of forecast challenges



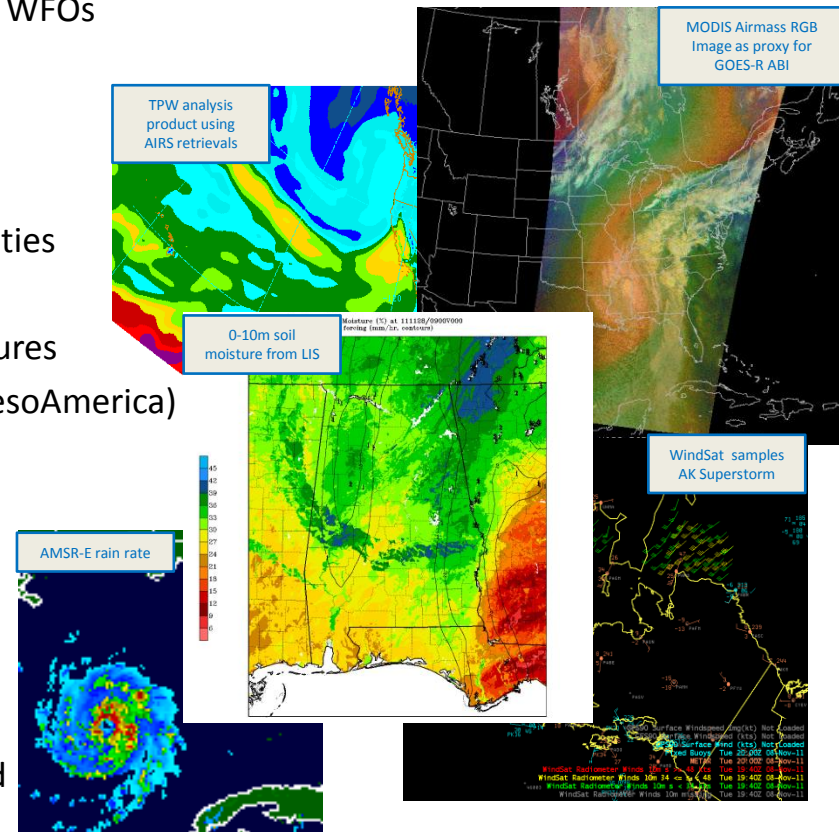
SPoRT Paradigm: Ensuring Successful R2O



- Bridge the “Valley of Death”
- Can’t just “throw data over the fence”
 - Maintain interactive partnerships with help of specific advocates
 - Integrate into user decision support tools
 - Create product training
 - Perform product assessment
- Use experimental datasets and proxies in advance of operational use to demonstrate utility and impact
- Concept has been used to successfully transition a variety of satellite datasets to operational users for nearly 10 years
- Other groups have adopted paradigm

GPM Working Group Questions

- SPoRT's current use of satellite products
 - Suite of EOS products from MODIS, AIRS, AMSR-E, etc. integrated into end user's decision support system
 - Passive microwave imagery (individual channels and RGB) and products (precipitation estimates) from SSM/I and TMI at National Centers and Pacific and Alaska Region WFOs
 - Involved in GOES-R PG, VIIRS, and WindSat over Alaska
- Requirements for GPM Products
 - TPW: identification and tracking of atmospheric rivers
 - QPE: model validation, use in land surface modeling activities
 - Precipitation Type: enhancements to rain/snow products
 - Basic Channel Imagery: identification of atmospheric features
 - Access to real-time data over North America (including MesoAmerica)
 - Documentation of strengths, weaknesses, limitations, and accuracy of derived products
- Potential obstacles
 - Large data latencies or limited access to real-time data
 - Poor quality control or inadequate ground verification
 - Lower spatial (derived products) or temporal (budget cuts removing planned satellites) resolution than expected
 - Lack of training or user feedback on new product use



Accelerating GPM Infusion

- Tap into strengths and expertise of established transition to operation centers like SPoRT who focus on matching end-user forecast challenges to relevant GPM products
 - Active, hand-on collaborations with end-users a must for them to pay attention to any new data products
 - Without sufficient training, new products will not be adopted
- Integrate data products into the end-user's decision support systems
 - Each operational user has different requirements/data formats so products must be developed that can be displayed/used within WFOs and National Centers (e.g. AWIPS, AWIPS II, AWIPS, Google Earth, ArcGIS)
 - Data assimilation: BUFR
- Conduct regular and targeted assessments
 - Select interested users who have identified a specific forecast challenge
 - Ask specific questions regarding the utility of a product or image and how useful it was in addressing the forecast challenge
 - Use that feedback to adjust the product to fit into the end-user's utility
- Assign specific tasks/products to specific organizations
 - Reduces redundancy of development of algorithms and products and confusion as to a group's role
 - Allows end-users to provide specific feedback to one entity in a controlled manner

